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LITERATURE CITED

- FLINT, O. S., JR. 1961. The immature stages of the Arctopsychinae occurring in eastern North America (Trichoptera : Hydropsychidae). *Ann. Entomol. Soc. Amer.*, 54 (1) : 5-11.
- MILNE, L. J. AND M. J. MILNE. 1938. The Arctopsychidae of continental America north of Mexico (Trichoptera). *Brooklyn Entomol. Soc. Bull.*, 33 (3) : 97-110.
- ROSS, H. H. 1959. Trichoptera, p. 1024-1049. *In* W. T. Edmondson, ed., *Ward and Whipple's Fresh-water Biology*. John Wiley and Sons, New York.

A New Genus of Pselaphid Beetle from Southeast United States (Coleoptera : Pselaphidae)

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Pygmactium Schuster and Grigarick belongs in the pselaphid tribe Euplectini and is closely related to those genera assigned to the subtribe Trimiini. Members of the genus are small, one millimeter or less in length. Specimens were obtained by Berlese funnel extraction from forest litter. Two species are assigned to the genus.

Pygmactium Schuster and Grigarick, new genus

TYPE OF GENUS: *Pygmactium steevesi* Schuster and Grigarick, new species.

Euplectini with the following combination of characters: EITHER SEX: 1) Ventral surface of head bearing capitate setae (fig. 2). 2) Antennal club of three segments (fig. 1), with segment X symmetrical, conically produced, and not appressed to XI. 3) Pronotum with transverse antebasal sulcus, posterior margin broadly and shallowly impressed, with sulcus shaped as a "V" rather than a "Y." 4) Each elytron with sutural, discal, and subhumeral foveae (disc not striate). 5) First visible tergite with basal carinae (fig. 10). 6) Profemur grooved ventrally, groove containing a row of specialized setae (fig. 4). 7) Prosternum foveate at anterior margin of coxal cavities (fig. 5). 8) Mesocoxal cavities broadly

confluent; metasternum foveate near posterior margins of mesocoxal cavities. 9) Tarsi with long primary and short, thin, secondary claws (fig. 3). MALES. 10) Abdominal sternite II with pair of large median basal carinae and pair of smaller lateral carinae (fig. 11). 11) Sternite III with lateral modifications. 12) Sternite VI broadly but shallowly emarginate. 13) VII a transverse penial plate of moderate size. 14) Aedeagus dorsoventrally compressed, with right and left parameres of similar size (figs. 13, 14). FEMALES. 15) With only 6 abdominal sternites. 16) Sternite III not modified. 17) VI with transverse posterior margin (fig. 12).

Pygmactium will proceed to *Actium* in Park's key (1953) but it differs from that genus by the absence of discal striae, the presence of carinae on the second sternite, the shape of the carinae on the first visible tergite, and the form and orientation of the aedeagus.

Pygmactium steevesi Schuster and Grigarick, new species

(Figs. 1-7, 10-12, 14-15)

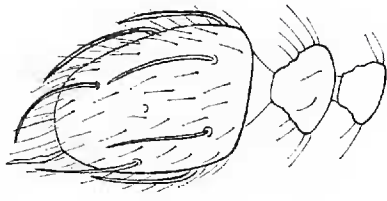
MALE.—(slide) Head 165 μ long, 165 μ wide; vertexal foveae 70 μ between centers; right mandible with 4 teeth, left with 5 teeth; ventral surface with 16 capitate setae (fig. 2); eyes small, about 15 facets. Antenna 285 μ long; segments I plus II 75 μ long, 30 μ wide; III to VIII inclusive 75 μ long, 20 μ wide; antennal club (fig. 1) as follows: IX 22 μ long, 25 μ wide; X 23 μ long, 37 μ wide; XI 90 μ long, 60 μ wide, nearly as long as preceding 5 segments.

Pronotum 180 μ long, 187 μ wide. Elytron 255 μ long. Brachypterous, wings 335 μ long. Profemur (fig. 4) 52 μ wide; protibia simple. Mesotrochanter simple; mesofemur 47 μ wide. Mesotibia simple. Post mesocoxal foveae large, with apodemes directed obliquely forward. Metafemur 45 μ wide.

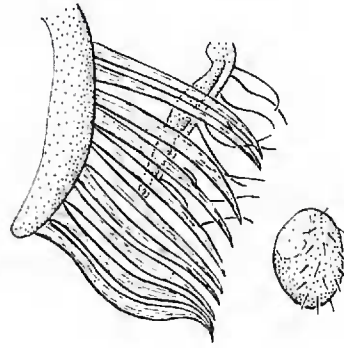
First visible abdominal tergite (fig. 10) 202 μ wide at base; basal carinae 30 μ long, separated by 60 μ ; II without basal carinae. Sternite II (fig. 11) with basolateral carinae 30 μ long, 170 μ apart; with a longitudinal depression lateral to each carina; III with paired lateral carinae (fig. 6), inner carina with 10 laterally directed lamellate setae extending over outer carina which bears simple setae; IV simple; V densely setate laterally; VI with broad median emargination; penial plate nearly rectangular, 40 μ long, 40 μ wide. Aedeagus (fig. 14) 105 μ long, 40 μ wide.

FEMALE.—Similar to the male except: abdominal sternite III simple; alate, with wings 940 μ long, or brachypterous. Abdomen with only 6 sternites; IX as in fig. 15 (apex with position of segment IX indicated in fig. 12 ventral).

GEOGRAPHIC DISTRIBUTION.—FLORIDA. *Highlands County*: Highlands Hammocks State Park, 55 ♂, 121 ♀, 5-6 April 1966, fern rhizomes and forest floor debris in palmetto and pine swamp, H. R. Steeves, Jr.; Lake Placid, 1 mi. N. Archbold Biol. Station at intersection of State Highways 17 and 70, 68 ♂, 121 ♀, 5-6 April 1966, palmetto and pine litter, H. R. Steeves, Jr.; east side of Lake Placid, 49 ♂, 104 ♀, 3 April 1966, grass hummocks and buttress debris in dry pine woods, H. R. Steeves, Jr.; Avon Park, 161 ♀, 3 April 1966, palmetto and pine forest debris, H. R. Steeves, Jr. *Hernando County*: 7 mi. NW. Brooksville, 46 ♀, 6 April 1966, base of white oak, H. R. Steeves, Jr.



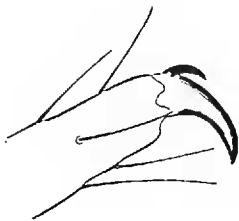
1 steevesi



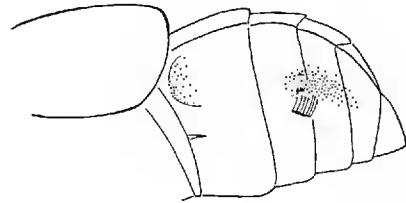
6 steevesi



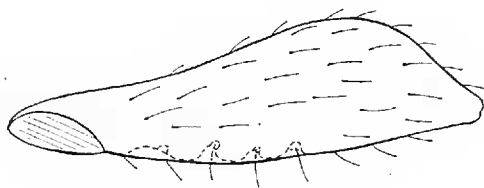
2 mollyae



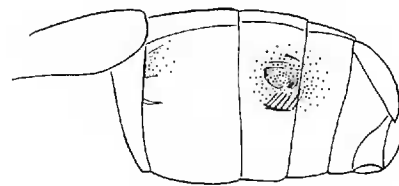
3 steevesi



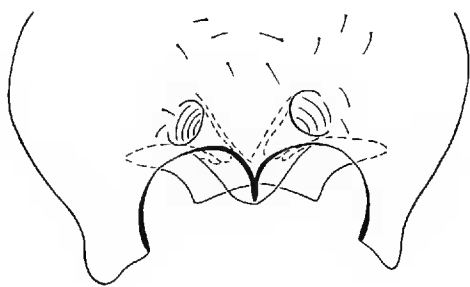
7 steevesi



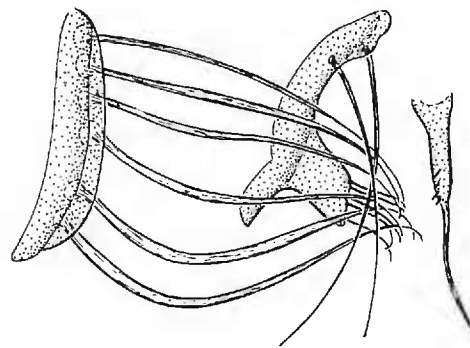
4 steevesi



8 mollyae



5 steevesi



9 mollyae

The *holotype* is a small-eyed *male* from HIGHLANDS HAMMOCKS STATE PARK and is deposited with the Chicago Natural History Museum. The remaining specimens listed above are paratypes. The following specimens from Florida are considered conspecific but are not designated as paratypes.

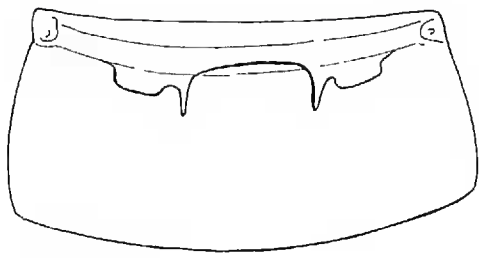
Alachua County: Gainesville, 14 ♂, 16 ♀, 22 August 1965, pine buttress, H. R. Steeves, Jr.; Island Grove, Orange Lake, 4 ♀, 22 August 1965, forest floor debris, H. R. Steeves, Jr.; 5 mi. E. Micenopy, 3 ♀, 22 August 1965, sawdust pile, H. R. Steeves, Jr. *Orange County*: S. Orlando, 27 ♀, 22 August 1965, buttress and stump debris, H. R. Steeves, Jr. *Seminole County*: 2 mi. N. Longwood, 94 ♀, 23 August 1965, palmetto and rotten log debris, H. R. Steeves, Jr. *Volusia County*: 2 mi. S. Enterprise, 10 ♀, 23 August 1965, palmetto axils and forest floor debris, H. R. Steeves, Jr.

DISCUSSION.—The males of this species are easily distinguished from those of *P. mollyae* by the lateral modifications of sternite III. These structures for *P. steevesi* consist of an inner carina bearing about 10 lamellate setae and a smaller outer carina with about 8 setae equally spaced along it. A rounded tubercle is present near the lateral margin, and its surface is uniformly setate. The inner carina of *P. mollyae* bears 6 or 7 slender setae. The outer carina bears 2 long setae on the anterior margin and about 6 smaller setae on a distinct posterior projection. The lateral tubercle of *P. mollyae* is elongate with a long apical seta and a few minute subapical setae. The genitalia of the males differ particularly with respect to the distribution of pores (compare figs. 13 and 14) and the development of setae at the apex of the parameres. The small size of these structures make their preparation difficult, and details of the apices of the parameres, as figured, required some interpretation.

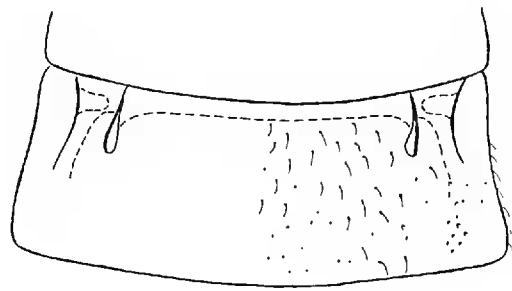
The sex ratio for the total paratypic series is approximately 1 ♂ : 3 ♀. The actual numbers (♂ : ♀) from separate localities are: 0 : 161, 0 : 47, 49 : 104, 55 : 121, and 68 : 121. Within these samples, the numbers of eye facets for males varied from about 15 to 35. All of the dissected specimens were brachypterous. Winged and brachypterous males were

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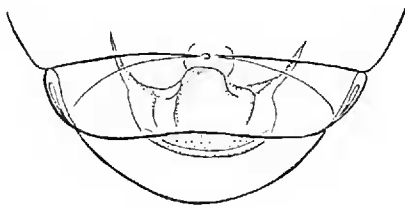
FIG. 1. *Pygmactium steevesi* ♀, antennal club. FIG. 2. *Pygmactium mollyae*, capitate seta of ventral surface of head. FIG. 3. *Pygmactium steevesi* ♂ paratype, primary and secondary metatarsal claws. FIG. 4. *Pygmactium steevesi* ♂ paratype, profemur. FIG. 5. *Pygmactium steevesi* ♀, prosternum with procoxal foveae. FIG. 6. *Pygmactium steevesi* ♂ paratype, detail of structures on sternite III. FIG. 7. *Pygmactium steevesi* ♂ paratype, abdomen, lateral. FIG. 8. *Pygmactium mollyae* ♂ holotype, abdomen, lateral. FIG. 9. *Pygmactium mollyae* ♂, detail of structures on sternite III.



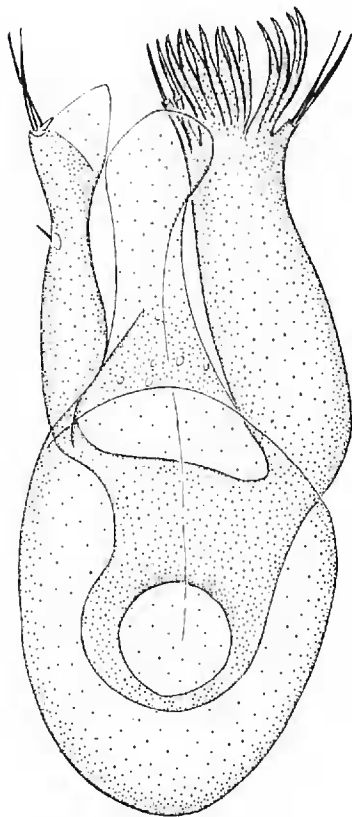
10 steevesi



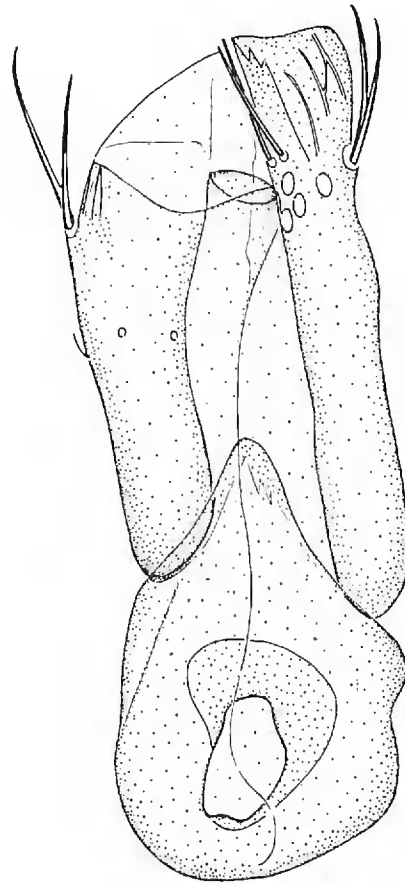
11 steevesi



12 steevesi



13 mollyae



14 steevesi

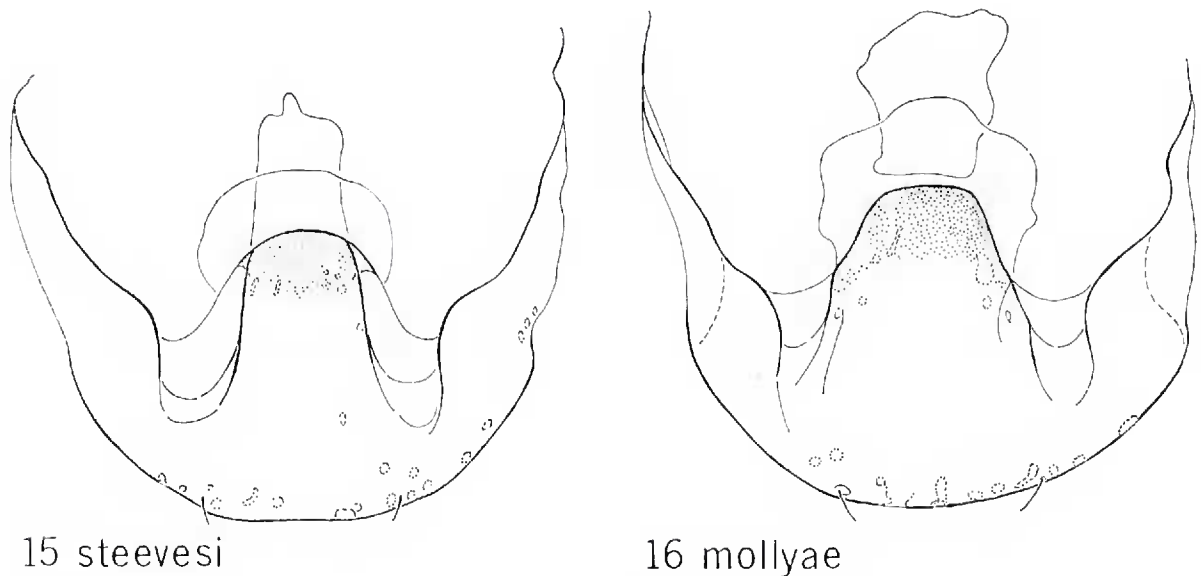


FIG. 15. *Pygmactium steevesi* ♀ paratype, abdominal segment IX. FIG. 16. *Pygmactium mollyae* ♀, abdominal segment IX.

present in a population from Gainesville in which the sex ratio was 1 : 1 (14♂ : 16♀). The significance of wing development to sex ratio is unknown. Variation in eye and wing size for the females is similar to that noted for the males.

PYGMACTIUM MOLLYAE (Park), (new combination)

(Figs. 8, 9, 13, 16)

Actium mollyae Park, 1956, Jour. Tenn. Acad. Sci., 31: 56.

The description of *P. mollyae* is emended to facilitate comparison with *P. steevesi* and to add information obtained from dissected specimens.

MALE.—(slide) Head 157 μ long, 165 μ wide; vertexal foveae 70 μ between centers; right mandible with 5 teeth, left with 5 teeth; ventral surface with 14 capitate setae; eyes small, of 8 facets (holotype). Antenna 275 μ long; segments I plus II 60 μ long, 28 μ wide; III to VIII inclusive 95 μ long, 20 μ wide; IX 20 μ long, 25 μ wide; X 25 μ long, 37 μ wide, symmetrical; XI 80 μ long, 60 μ wide, as long as preceding 4 segments.

Pronotum 185 μ long, 205 μ wide. Elytron 250 μ long. Brachypterous. Pro-trochanter simple; profemur 54 μ wide; protibia simple. Mesotrochanter simple; mesofemur 54 μ wide; mesotibia simple. Post mesocoxal foveae with apodemes directed slightly forward. Metafemur 47 μ wide, metasternum unmodified.

First visible tergite 210 μ wide at base; basal carinae 25 μ long, separated by 70 μ . Sternite II with basal carinae 35 μ long, 195 μ apart; III with oblique

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FIG. 10. *Pygmactium steevesi* ♀, first visible tergite. FIG. 11. *Pygmactium steevesi* ♂ paratype, sternite II. FIG. 12. *Pygmactium steevesi* ♀, apex of abdomen, ventral. FIG. 13. *Pygmactium mollyae* ♂, genitalia, dorsal. FIG. 14. *Pygmactium steevesi* ♂ holotype, genitalia, dorsal.

lateral carina, right carina with 7 setae, left with 6 setae; 2 setate structures occur laterad to each carina; IV with slight depression; V simple; VI with broad median emargination; penial plate 44 μ long, 45 μ wide. Aedeagus 130 μ long, 45 μ wide.

FEMALE.—Similar to the male except: sternite III simple; abdomen of 6 sternites; brachypterous (1 example dissected); segment IX as illustrated (fig. 16).

GEOGRAPHIC DISTRIBUTION.—The *type male* and 2 paratype females in the collection of Dr. Orlando Park were collected at COOKS SPRINGS, ST. CLAIR COUNTY, ALABAMA on 5 March 1950. Specimens from the following localities have been examined.

ALABAMA. *Blount Co.*: near Wildcat Cave, 2 ♂, 17 May 1959, rotten tree stump, H. R. Steeves, Jr. *Pike Co.*: The Pocosin, nr. Troy, 1 ♂, 3 ♀, 6 August 1961, oak tree hole and forest litter, H. R. Steeves, Jr., and J. D. Patrick. *Shelby Co.*: The Penitentiary, 4 ♂, 4 ♀, 3 September 1966, forest duff, H. R. Steeves, Jr.; Oak Mt. State Park, 1 ♂, 2 ♀, 26 March 1961, forest floor debris, H. R. Steeves, Jr. NORTH CAROLINA. *Duplin Co.*: near Calypso, 7 ♀, 2 January 1965, oak and pine litter, J. F. Cornell. *Polk Co.*: near Tryon, 1 ♀ (paratype), 27 November 1949, stump mold of yellow pine, L. M. Eisenach. *Randolph Co.*: 1 ♂, 18 June 1963, oak log litter, J. F. Cornell and J. F. Cornell, Sr. *Wake Co.*: N. C. State College, Raleigh, 1 ♀, 8 September 1964, oak and pine litter, J. F. Cornell. TENNESSEE. *Fentress Co.*: Jamestown, 1 ♀, 16 June 1962, forest floor debris, H. R. Steeves, Jr.

DISCUSSION.—The differences in the lateral modifications of sternite III (figs. 6–9) and the male genitalia (figs. 13, 14) as discussed under *P. steevesi*, will distinguish the males of *P. mollyae*. The females of *P. mollyae* are very similar to those of *P. steevesi* but they appear to be slightly larger. Abdominal segment IX differs slightly in respect to sclerotization, proportion, and pore distribution (compare figs. 15, 16). Segment IX of a small series of dissected females of *P. steevesi* was quite constant. A comparative series of *P. mollyae* is not now available for dissection.

From the few small samples examined, the sex ratio appears to be 1 ♂ : 2 or 3 ♀. The number of eye facets for males was between 8 and 28, and for females 4 and 12. Populations with differing sex ratios, eye sizes, and degrees of wing development probably occur within the geographic range of this species.

LITERATURE CITED

- PARK, O. 1953. Discrimination of genera of pselaphid beetles of the United States. *Chicago Acad. Sci. Bull.*, 9 (16): 229–331.
1956. New or little known species of pselaphid beetles from southeastern United States. *Jour. Tenn. Acad. Sci.*, 31 (1): 54–100.